

## Claims

We claim:

1. A method for configuring a graphical user interface (GUI) element to  
5 publish or subscribe to a data target or data source, respectively, the method comprising:  
receiving user input specifying at least one of a data source or data target;  
automatically displaying a GUI element in response to the user input;  
automatically configuring the GUI element to perform at least one of: 1)  
receiving and displaying data from the specified data source; and/or 2) publishing data  
10 associated with the GUI element to the specified data target.

2. The method of claim 1, wherein said automatically displaying and  
configuring the GUI element comprise programmatically displaying and configuring the  
GUI element.  
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3. The method of claim 1, wherein the GUI element is automatically  
configured without user programming.

4. The method of claim 1, wherein the GUI element is automatically  
20 configured without user input specifying source code for this operation

5. The method of claim 1, further comprising:  
the GUI element performing one or more of: 1) receiving and displaying data  
from the specified data source; or 2) publishing data associated with the GUI element to  
25 the specified data target, wherein said performing is performed after said automatically  
configuring.

6. The method of claim 1, further comprising:



11. The method of claim 1,

wherein the method executes on a first computer;

wherein the at least one of the data source or data target is comprised in a second computer remotely located from the first computer, wherein the first computer is operable

5 to connect to the second computer over a network;

wherein said automatically configuring the GUI element comprises automatically configuring the GUI element to connect to the second computer and perform at least one of: 1) receive and display data from the specified data source; and/or 2) publish data associated with the GUI element to the specified data target.

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12. The method of claim 1, wherein the GUI element is associated with a first computer program;

wherein said user input specifying at least one of a data source or data target is received during development of the first computer program;

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wherein said automatically displaying the GUI element comprises automatically including the GUI element in a user interface associated with the first computer program.

13. The method of claim 12, further comprising:

executing the first computer program after said automatically configuring,

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wherein said executing the first computer program includes the GUI element performing one or more of: 1) receiving and displaying data from the specified data source; or 2) publishing data associated with the GUI element to the specified data target.

14. The method of claim 12,

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wherein the first computer program is a graphical program.

15. The method of claim 1, wherein the at least one of the data source or data target is one from the group consisting of:

an HTTP server;

an FTP server;  
an OPC server;  
an SNMP server;  
a DataSocket server; and  
5 a file.

16. The method of claim 1,  
wherein said user input specifies a first data source with which to associate the  
GUI element;

10 wherein said automatically configuring comprises automatically configuring the  
GUI element to receive and display data from the first data source.

17. The method of claim 1,  
wherein said user input specifies a first data target with which to associate the  
15 GUI element;

wherein said automatically configuring comprises automatically configuring the  
GUI element to publish data associated with the GUI element to the first data target.

18. The method of claim 1,  
20 wherein said user input specifies both a data source and a data target with which  
to associate the GUI element;

wherein said automatically configuring comprises automatically configuring the  
GUI element to: 1) receive and display data from the specified data source; and 2)  
publish data associated with the GUI element to the specified data target.

25 19. The method of claim 18, wherein the specified data source is the same as  
the specified data target.

20. The method of claim 1, wherein the data is live data.

21. The method of claim 20,  
wherein the data comprises measurement data.

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22. A method for configuring a graphical user interface (GUI) element to  
display data, the method comprising:

receiving user input specifying a data source;  
10 automatically displaying a GUI element in response to the user input; and  
automatically configuring the GUI element to receive and indicate data from the  
specified data source.

23. The method of claim 22,  
15 wherein said automatically displaying and configuring the GUI element comprise  
programmatically displaying and configuring the GUI element.

24. The method of claim 22, wherein the GUI element is automatically  
configured to receive and indicate data from the specified data source without user  
20 programming.

25. The method of claim 22, further comprising:  
automatically determining an appropriate GUI element to display, based on the  
specified data source;  
25 wherein said automatically displaying a GUI element comprises automatically  
displaying the determined GUI element.

26. The method of claim 25, further comprising:

receiving data from the data source in response to the user input specifying the data source;

wherein said determining an appropriate GUI element to display comprises automatically analyzing the received data and automatically determining a GUI element operable to indicate the received data.

27. The method of claim 26,  
wherein the data is received in a self-describing format;  
wherein said automatically determining a GUI element operable to indicate the received data comprises automatically determining a GUI element operable to indicate data of the self-described format.

28. The method of claim 22, wherein the GUI element is associated with a first computer program;  
wherein said automatically displaying the GUI element comprises automatically including the GUI element in a user interface associated with the first computer program;  
wherein the user input specifying the data source is received during development of the first computer program.

29. The method of claim 28, wherein said receiving user input specifying the data source does not include receiving user input specifying source code for the first computer program.

30. The method of claim 22,  
wherein said indicating the data comprises displaying the data.

31. A method for configuring a first computer program to display data, the method comprising:

receiving user input during development of the first computer program specifying a data source;

5 automatically determining a graphical user interface (GUI) element operable to display data from the specified data source, in response to the user input;

automatically including the GUI element in a graphical user interface of the first computer program;

10 automatically configuring the first computer program to receive and display data from the specified data source in the GUI element during program execution.

32. The method of claim 31,  
wherein the first computer program is a graphical program.

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33. A method for configuring a graphical user interface (GUI) element to publish and subscribe to data, the method comprising:

20 receiving user input specifying a data source and data target, wherein the data source and data target are the same;

automatically displaying a GUI element in response to the user input; and

automatically configuring the GUI element to receive and display data from the specified data source and publish data to the specified data target.

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34. A system for configuring a graphical user interface (GUI) element to publish or subscribe to a data target or data source, respectively, the system comprising:  
a display device;

a processor;  
a memory medium coupled to the processor, wherein the memory medium stores a first program;

wherein the processor is operable to execute the first program to:

- 5           receive user input specifying at least one of a data source or data target;  
            automatically display a GUI element in response to the user input;  
            automatically configure the GUI element to perform at least one of: 1)  
receiving and displaying data from the specified data source; and/or 2) publishing data  
associated with the GUI element to the specified data target.

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35.    The system of claim 34, wherein the GUI element is automatically configured without user programming.

36.    The system of claim 34, wherein the processor is further operable to execute  
15 the first program to:

            automatically determine an appropriate GUI element to display, based on the specified data source or data target;

            wherein said automatically displaying a GUI element comprises automatically displaying the determined GUI element.

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37.    The system of claim 34, wherein the processor and memory are comprised in a first computer system, the system further comprising:

            a second computer system coupled to the first computer system via a network;

            wherein the at least one of the data source or data target is comprised in the  
25 second computer system;

            wherein the processor is operable to execute the first program to automatically configure the GUI element to connect to the second computer system and perform at least one of: 1) receiving and displaying data from the specified data source; and/or 2) publishing data associated with the GUI element to the specified data target.



38. A memory medium for configuring a graphical user interface (GUI)  
5 element to publish or subscribe to a data target or data source, respectively, the memory  
medium comprising program instructions executable to:

receive user input specifying at least one of a data source or data target;

automatically display a GUI element in response to the user input;

10 automatically configure the GUI element to perform at least one of: 1) receiving  
and displaying data from the specified data source; and/or 2) publishing data associated  
with the GUI element to the specified data target.

39. A method for viewing data, the method comprising:

15 executing a data viewer program;

the data viewer program receiving user input specifying a data source;

the data viewer program automatically determining a graphical user interface  
(GUI) element operable to view data from the specified data source;

20 the data viewer program automatically displaying the GUI element and  
automatically configuring the GUI element to receive and display data from the specified  
data source; and

the GUI element receiving data from the specified data source and displaying the  
received data.

25 40. The method of claim 39,

wherein said automatically determining the GUI element comprises  
programmatically determining the GUI element;

wherein said automatically displaying and configuring the GUI element comprise  
programmatically displaying and configuring the GUI element.

